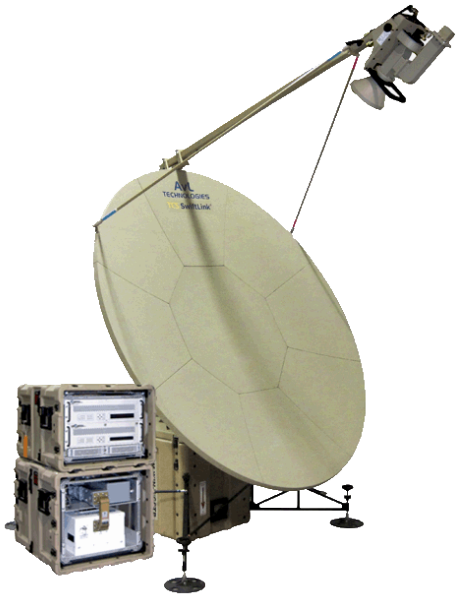
**SNAP Tactical Transportable Tropo (3T) passes the US Army's AN/TRC-170 Joint Interoperability Test**

The US Army's Fort Gordon Network Battle Lab has completed the interoperability evaluation of the legacy AN/TRC-170 V2 & V3 troposcatter terminals and associated antenna systems with the Comtech / TCS SNAP Tactical Transportable Tropo (3T).

The Battle Lab developed a three-step approach to compatibility testing;

1. A mathematical exercise to evaluate the system differences in power gain, noise figure and antenna gain/efficiency to determine link budget.
2. A bench test to validate the interoperability measuring bit error rate (BER) and packet loss.
3. Live field-testing to validate interoperability measuring BER and packet loss.



Tactical Transportable Tropo (3T)

Step One, was purely a mathematical exercise to determine a prediction of link performance of the system during the live field testing.

Step Two, was a bench testing conducted at Comtech's facility in Orlando FL under the direction of the Army Battle Lab. Two scenarios were tested; the first was the 3T connected the AN/TRC-170 V3 operating in dual diversity; the second with the 3T connected to the AN/TRC-170 V2 operating in quad diversity. Both tests were successfully completed, passing high speed data in both directions, thereby proving both modem and radio interoperability between the two systems in a controlled environment.

Step Three, was conducted in two separate live fielding's, one at Warner Robbins Georgia, the other at Ft. Gordon Georgia. In both events the 3T was shown to be interoperable with the AN/TRC-170 in both quad diversity and space diversity.

modem designs to account for the additional energy loss in both fast and slow fading conditions. Other paths can be set up under appropriate conditions using diffraction over high terrain features to close the link.

The first field test was conducted on a 99 km troposcatter link from Macon GA to Americus GA. Utilizing a US Air Force AN/TRC-170 V2 (the quad diversity variant) at the Macon end and a 3T configured for quad diversity at the Americus end. Interoperability testing was a complete success, passing high-speed data in both directions error free.

At this fielding another important feature of the 3T was demonstrated in addition to it interoperability; that is the flexibility of the modular concept of this terminal which allows the conversion from dual diversity to quad diversity by simply adding another antenna and RF module case. With the Army using primarily dual diversity TRC 170 s and the Air Force meeting its TRC 170 requirements with quad diversity terminals, the 3T demonstrated that in addition to interoperability, with the simple addition or deletion of an antenna and a transit case it can be configured to meet all TRC 170 configurations.

3T Configured for Quad Diversity TRC-170 in background

The second field test was conducted on a 139 km troposcatter link from Fort Gordon GA to Fort Jackson, S.C. Utilizing a US Army AN/TRC-170 V3 (the space diversity variant) at the Fort Jackson end and a 3T configured for space diversity at the Fort Gordon end, and again interoperability testing was a complete success.

TRC-170 V3 at Fort Jackson SC

During this second field test another important feature of the 3T came into play. Prior to establishing the AN/TRC-170 to 3T link, an AN/TRC-170 to AN/TRC-170 link was established from Fort Gordon GA to Fort Jackson, S.C. to be used as a baseline reference link. This link however proved to be a very marginal link due to high trees in the near field at the Fort Gordon end. In all practicality, this link could barely support 2Mb/s with an availability of 50% at an acceptable error rate.

A decision made at this time to take advantage of the 3T's transit case design flexibility and deploy it to the roof of nearby building on Fort Gordon. The building had an elevation of approximately 150' AGL. This height advantage increased the 3T to AN/TRC-170 signal strengths to levels of -58 to -65 dBm which allowed error free operation at 16 Mb/s.

3T Deployed on Top of 10 Story Building

The exercises with the 3T fully demonstrated its interoperability with any configuration of the TRC 170 tropo terminal; its ability to change diversity configurations with the simple addition or deletion of a case and an antenna; and it ability to be configured to roof top and non-traditional tropo locations if the need arises. The testing program vividly demonstrated that a new era of tropo scatter terminals has arrived. It is now possible to configure a tropo terminal to match mission requirements, operate in conjunction with legacy terminals and be transported and deployed by a wide range of non- dedicated modes of transportation ranging from aircraft to pickup trucks.

**SNAP Tactical Transportable Tropo (3T)**

The 3T is a ruggedized, transit-cased, C-Band Troposcatter system designed for ease of operation to data rates of up to 22 Mb/s . The 3T uses a combination of two field proven systems, the SNAP family of VSAT terminals produced by Telecommunication Systems (TCS) and Comtech Systems Modular Transportable Transmission System (MTTS). This winning combination is currently fielded by the US Army, and plays an important role in delivering mission-critical bandwidth to the battlefield.

For more information contact:
Mark Yamamoto
(407) 854-1950
Mark.yamamoto@comtechsystems.com